

## **CLAIM AMENDMENTS**

### **Claim Amendment Summary**

#### **Claims pending**

- Before this Amendment: Claims 1-46.
- After this Amendment: Claims 1-42 and 45-46.

**Non-Elected, Canceled, or Withdrawn claims: 43-44.**

**Amended claims: 10 and 29.**

**New claims: none.**

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### **Claims:**

1. (ORIGINAL) A kernel emulator for non-native program modules, the emulator comprising:

an interceptor configured to intercept kernel calls from non-native program modules;

a call-converter configured to convert non-native kernel calls intercepted by the interceptor into native kernel calls.

2. (ORIGINAL) An emulator as recited in claim 1, wherein the call-converter comprises a translator configured to translate a non-native paradigm for passing parameters into a native paradigm for passing parameters.

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1           3.    (ORIGINAL)    An emulator as recited in claim 1, wherein the  
2 call-converter comprises a translator configured to translate non-native CPU  
3 instructions into native CPU instructions.

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5           4.    (ORIGINAL)    An emulator as recited in claim 1, wherein the  
6 call-converter comprises a translator configured to translate addresses from non-  
7 native length into native length.

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9           5.    (ORIGINAL)    An emulator as recited in claim 1, wherein the  
10 call-converter comprises an argument-converter configured to convert non-native  
11 argument format into native argument format.

12  
13           6.    (ORIGINAL)    An emulator as recited in claim 1, wherein the  
14 call-converter comprises a translator configured to translate words from non-  
15 native word size into native word size.

16  
17           7.    (ORIGINAL)    An emulator as recited in claim 1 further  
18 comprising a memory constrainer configured to limit addressable memory to a  
19 range addressable by non-native program modules.

20  
21           8.    (ORIGINAL)    An emulator as recited in claim 1 further  
22 comprising a shared-memory manager configured to manage memory space that is  
23 accessible to both native and non-native program modules.  
24  
25

1           9.    (ORIGINAL)    An emulator as recited in claim 1 further  
2   comprising a shared-memory manager configured to synchronize a native shared  
3   data structure with a non-native shared data structure.

4  
5           10.   (CURRENTLY AMENDED)   An emulator as recited in claim 1  
6   further comprising a shared-memory manager configured to manage memory  
7   space that is accessible to both native and non-native program modules, wherein  
8   the shared-memory manager maps versions of process shared data structures  
9   (process SDSs) and versions of thread shared data structures (thread SDSs)  
10   between native and non-native program modules.

11  
12           11.   (ORIGINAL)    An operating system on a computer-readable  
13   medium, comprising:  
14       a native kernel configured to receive calls from native program modules;  
15       a kernel emulator as recited in claim 1 configured to receive calls from non-  
16   native program modules.

17  
18           12.   (ORIGINAL)    An operating system on a computer-readable  
19   medium, comprising:  
20       a native kernel configured to receive calls from native APIs;  
21       a kernel emulator as recited in claim 1 configured to receive calls from non-  
22   native APIs.

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1           **13. (ORIGINAL)**   A method of emulating a kernel for non-native  
2 program modules, the method comprising:

3           intercepting kernel calls from non-native program modules;

4           converting the intercepted non-native kernel calls into native kernel calls.

5  
6           **14. (ORIGINAL)**   A method as recited in claim 13, wherein the  
7 converting step comprises translating a non-native paradigm for passing  
8 parameters into a native paradigm for passing parameters.

9  
10          **15. (ORIGINAL)**   A method as recited in claim 13, wherein the  
11 converting step comprises translating non-native CPU instructions into native  
12 CPU instructions.

13  
14          **16. (ORIGINAL)**   A method as recited in claim 13, wherein the  
15 converting step comprises translating addresses from non-native length into native  
16 length.

17  
18          **17. (ORIGINAL)**   A method as recited in claim 13, wherein the  
19 converting step comprises translating words from non-native word size into native  
20 word size.

21  
22          **18. (ORIGINAL)**   A method as recited in claim 13 further  
23 comprising limiting addressable memory to a range addressable by non-native  
24 program modules.

1           19. (ORIGINAL) A method as recited in claim 13 further  
2 comprising synchronizing a native shared data structure with a non-native shared  
3 data structure.

4  
5           20. (ORIGINAL) A method as recited in claim 13 further  
6 comprising mapping versions of process shared data structures (SDSs) between  
7 native and non-native program modules.

8  
9           21. (ORIGINAL) A method as recited in claim 19, wherein a  
10 process SDS of a native program module includes a pointer to a process SDS of a  
11 non-native program module.

12  
13           22. (ORIGINAL) A method as recited in claim 19, wherein a  
14 process SDS of a non-native program module includes a pointer to a process SDS  
15 of a native program module.

16  
17           23. (ORIGINAL) A method as recited in claim 13 further  
18 comprising mapping versions of thread shared data structures (SDSs) data  
19 structure between native and non-native program modules.


20  
21           24. (ORIGINAL) A method as recited in claim 22, wherein a  
22 thread SDS of a native program module includes a pointer to a thread SDS of a  
23 non-native program module.

1           **25. (ORIGINAL)**   A method as recited in claim 22, wherein a  
2 thread SDS of a non-native program module includes a pointer to a thread SDS of  
3 a native program module.

4  
5           **26. (ORIGINAL)**   A computer comprising one or more computer-  
6 readable media having computer-executable instructions that, when executed by  
7 the computer, perform the method as recited in claim 13.

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9           **27. (ORIGINAL)**   A computer-readable medium having computer-  
10 executable instructions that, when executed by a computer, performs the method  
11 as recited in claim 13.

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13           **28. (ORIGINAL)**   An operating system embodied on a computer-  
14 readable medium having computer-executable instructions that, when executed by  
15 a computer, performs the method as recited in claim 13.

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1           **29. (CURRENTLY AMENDED)** A method comprising:  
2           determining whether an initiating program module is a native or non-native;  
3           if the initiating program is non-native:

4                 limiting available memory to a range that is addressable by the non-  
5           native program module, that range of addressable memory being less than  
6           the available memory;

7                 establishing non-native a version of a shared memory data structure  
8           that may be synchronized with a native version of the same shared memory  
9           data structure.

10  
11           **30. (ORIGINAL)** A method as recited in claim 29 further  
12 comprising:

13                 intercepting kernel calls from the non-native program module;  
14                 converting the intercepted non-native kernel calls into native kernel calls.

15  
16           **31. (ORIGINAL)** A method as recited in claim 29 further  
17 comprising emulating a non-native kernel for which kernel calls from the non-  
18 native program module are intended.

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RESPONSE TO OFFICE ACTION DATED 11/30/2004

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atty: Kasey C. Christie

1           **32. (ORIGINAL)**    A computer comprising one or more computer-  
2 readable media having computer-executable instructions that, when executed by  
3 the computer, perform the method as recited in claim 29.

4  
5           **33. (ORIGINAL)**    A computer-readable medium having computer-  
6 executable instructions that, when executed by a computer, performs the method  
7 as recited in claim 29.

8  
9           **34. (ORIGINAL)**    A method comprising emulating a non-native  
10 kernel for a native computing platform so that kernel calls from non-native  
11 applications are translated into calls to a native kernel.

12  
13           **35. (ORIGINAL)**    A method as recited in claim 34, wherein the  
14 emulating step comprises:

15           translating non-native CPU instructions into native CPU instructions;

16           translating addresses from non-native length into native length;

17           limiting addressable memory to a range addressable by non-native program  
18 modules.

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20           **36. (ORIGINAL)**    A method as recited in claim 35, wherein the  
21 emulating step further comprises translating a non-native paradigm for passing  
22 parameters into a native paradigm for passing parameters.



1           **37. (ORIGINAL)**    A method as recited in claim 34, wherein the  
2 converting step further comprises translating words from non-native word size into  
3 native word size.

4  
5           **38. (ORIGINAL)**    A computer comprising one or more computer-  
6 readable media having computer-executable instructions that, when executed by  
7 the computer, perform the method as recited in claim 34.

8  
9           **39. (ORIGINAL)**    A computer-readable medium having computer-  
10 executable instructions that, when executed by a computer, performs the method  
11 as recited in claim 34.

12  
13           **40. (ORIGINAL)**    A kernel emulator configured to emulate a non-  
14 native kernel for a native computing platform so that kernel calls from non-native  
15 applications are translated into calls to a native kernel.

16  
17           **41. (ORIGINAL)**    An emulator as recited in claim 40, wherein the  
18 emulator comprises:

19           an instruction-translator configured to translate non-native CPU  
20 instructions into native CPU instructions;

21           an address-translator configured to translate addresses from non-native  
22 length into native length;

23           an memory constrainer configured to limit addressable memory to a range  
24 addressable by non-native program modules.

1           **42. (CURRENTLY AMENDED)** An operating system on a  
2 computer-readable medium, comprising:

3           a native kernel configured to receive calls from native program modules;

4           a kernel emulator as recited in claim 40 configured to receive calls from  
5 non-native program modules.

6  
7           **43. (CANCELED)**

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10          **44. (CANCELED)**

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13          **45. (ORIGINAL)** A kernel emulator for non-native program  
14 modules, the emulator comprising:

15          an interceptor configured to intercept kernel calls from non-native program  
16 modules;

17          a call-converter configured to convert non-native kernel calls intercepted by  
18 the interceptor into native kernel calls, wherein the call-converter comprises:

19                  an instruction-translator configured to translate non-native CPU  
20 instructions into native CPU instructions;

21                  an address-translator configured to translate addresses from non-  
22 native length into native length.  
23  
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1           **46. (ORIGINAL)**     An operating system on a computer-readable  
2 medium, comprising:

3           a native kernel configured to receive calls from native program modules;

4           a kernel emulator as recited in claim 45 configured to receive calls from  
5 non-native program modules.

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